

REMARKS

This Amendment is filed in response to the Office Action mailed on January 6, 2009. All objections and rejections are respectfully traversed.

Claims 1-58 are currently pending.

Request for Interview

Applicant respectfully requests a telephonic interview with the Examiner after the Examiner has had an opportunity to consider this Amendment, but before the issuance of the next Office Action. The Applicant may be reached at 617-951-3067.

Claim Objections

At paragraphs 3-4 of the Office Action, claim 52 was objected to for informalities.

Applicant has amended the claim to overcome the objection, and believes the claims are allowable over the objection.

Claim Rejections – 35 USC § 103

At paragraphs 5-6 of the Office Action, claims 1-4, 6-36, and 38-58 were rejected under 35 U.S.C. §103 as being unpatentable over Blumenau et al., US Patent 6,421,711, hereinafter Blumenau, in view of “A Guide to Understanding Veritas Volume Replicator,” hereinafter VVR.

The present invention, as set forth in representative claim 1, comprises in part:

1. A system configured to simplify management of a clustered storage system having a plurality of failover modes, the system comprising:

a user interface system that defines a plurality of failover modes, wherein each failover mode automatically configures one or more ports on a selected storage system or a partner storage system in response to a failover condition; and

a command set implemented by the user interface system and including a command for a user to set a cluster mode where the cluster mode includes at least one of the plurality of failover modes, wherein *each failover mode configures the partner storage system with a world wide node name and a world wide port name from the selected storage system to allow the partner storage system to assume an identity of the selected storage system, wherein the partner storage system is configured to receive requests directed to the partner storage system and the selected storage system.*

By way of background, Blumenau discloses a storage controller with at least one physical port and a plurality of virtual ports. A virtual switch routes storage requests from the physical port to the virtual ports. The storage controller includes a graphical user interface (GUI) that includes a grid of logical volumes to storage adapter ports. Additionally, at each intersection on the grid, the target/LUNs assigned to provide the administrator with a view of the mappings of LUNs to logical storage volumes and storage adapters. Furthermore, an administrator can use “mount” and “unmount” commands for mounting and unmounting storage volumes to storage ports.

VVR discloses a replication system for a cluster system, where the primary storage system and the secondary storage system are located in two separate geographic areas. Both the primary storage system and the secondary storage system are made up of a two node cluster site. Data is replicated on the secondary storage system using synchronous or asynchronous replication modes. Upon a partial failure of a primary storage sys-

tem, the second node in the cluster system takes over as the primary storage system. Upon a full failure of the primary storage system, the secondary storage system takes over. If a power outage occurs at the primary storage system, then the secondary storage system can take over the primary storage system.

Applicant respectfully urges that Blumenau and VVR, taken alone or in combination do not teach or suggest Applicant's claimed novel *each failover mode configures the partner storage system with a world wide node name and a world wide port name from the selected storage system to allow the partner storage system to assume an identity of the selected storage system, wherein the partner storage system is configured to receive requests directed to the partner storage system and the selected storage system.*

In further detail, in Applicant's claimed invention, a user interface is used to simplify management of a clustered storage system. The user interface defines a plurality of failover modes for operating the cluster in cluster mode. The command set permits the administrator to set the cluster failover mode as STANDBY, PARTNER, TAKEOVER, DUAL_FABRIC, or MIXED. Each failover mode, allows a port on the partner storage system to assume the world wide node name and world wide port name of the selected (failed) storage system. The port on the partner storage system assumes the identity of the selected (failed) storage system to receive requests directed to the selected (failed) storage system. Additionally, the partner storage system is configured to receive requests directed to the partner storage system and the selected (failed) storage system.

In contrast, Blumenau discloses a world wide name (WWN) of a port, but is silent in regard to a world wide node name. A world wide node name uniquely identifies the

entire node (server). (pg 17, line 13-17). One disclosure of the fibre channel protocol states the node name is shared by all ports on a host bus adapter.

As stated in Wikipedia:

Fibre Channel Host Bus Adapters

Fibre Channel HBAs are available for all major open systems, computer architectures, and buses, including PCI and SBUS (obsolete today). Some are OS dependent. Each HBA has a unique World Wide Name (WWN), which is similar to an Ethernet MAC address in that it uses an Organizationally Unique Identifier (OUI) assigned by the IEEE. However, WWNs are longer (8 bytes). There are two types of WWNs on a HBA; a node WWN (WWNN), which is shared by all ports on a host bus adapter, and a port WWN (WWPN), which is unique to each port. Some Fibre Channel HBA manufacturers are Emulex, LSI Logic, QLogic and ATTO Technology. ATTO was the first to market with 4Gb and Quad Channel Host Adapters. (http://en.wikipedia.org/wiki/Fibre_channel) (emphasis added) (Also stated in RFC 2625 (<http://www.faqs.org/rfcs/rfc2625.txt>) and RFC 3720 (<http://www.ietf.org/rfc/rfc3720.txt>))

Based on the known implementation of fibre channel protocol, a person skilled in the art would only be able to modify the node name of the second node in the cluster in VVR to the primary device, which would result in the second node only processing requests of the primary device and not the standby device. In contrast, Applicant's method and system of modifying just the port name to the node name of the selected (failed) storage system allows the partner storage system to have the identity of both the first device and the second device, and therefore process requests directed to both devices. There is no disclosure in VVR nor suggestion based on a person skilled in the art at the time of Applicant's filing of modifying the second port on the standby storage system with the node name of the selected (failed) storage system, which results in the partner storage

system configured with two node names. There is no disclosure in Blumenau nor VVR of each failover mode assuming a *world wide node name and a world wide port name from the selected storage system* to allow the partner storage system to receive requests directed to both the partner storage system and the selected (failed storage system), as claimed by Applicant.

The Examiner states that a “world wide node name” is a “LUN.” The Examiner uses Col. 9, lines 26-32 for support, which states:

“The node also has a number of entities 53, 54, 55, 56, which are accessible through one or more of the ports, and which are identified by logical unit numbers (LUNs), each of which is unique for any single node. For example, if the node 50 is a storage subsystem, each logical storage volume is assigned a unique LUN.”

In reference to the statement above, Blumenau discloses a LUN. A LUN is a logical unit number used to identify units of storage. As stated above, a world wide node name identifies an entire node or storage system.

Accordingly, Applicant respectfully urges that Blumenau and VVR, taken alone or in combination, are legally insufficient to make obvious the presently claimed invention under 35 U.S.C. § 103 because of the absence of the Applicant’s claimed novel *each failover mode configures the partner storage system with a world wide node name and a world wide port name from the selected storage system to allow the partner storage system to assume an identity of the selected storage system.*

At paragraph 7 of the Office Action, claims 5, 23, and 37 were rejected under 35 U.S.C. §103 as being unpatentable over Blumenau, in view of Clark, “IP SANs: A Guide to iSCSI, iFCP, and FCIP Protocols for Storage Area Networks” Published Nov. 26, 2001, hereinafter Clark.

Applicant respectfully notes that claims 5, 23, and 37 are dependent claims that depend from independent claims believed to be in condition for allowance. Accordingly, claims 5, 23, and 37 are believed to be in condition for allowance.

All independent claims are believed to be in condition for allowance.

All dependent claims are dependent from independent claims which are believed to be in condition for allowance. Accordingly, all dependent claims are believed to be in condition for allowance.

Favorable action is respectfully solicited.

Please charge any additional fee occasioned by this paper to our Deposit Account No. 03-1237.

Respectfully submitted,

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